

Optical Services Gateway (OSG) Platform

- Tight Integration of major system blocks
- Enables highly competitive overall BOM
- Family of integrated product platforms
- Full featured integrated software package
- Complete development kit available



the edge in broadband™

An Integrated Product Platform

Centillium's broad product portfolio offers major systems building blocks for a range of integrated product platforms. Two product families are brought together in its Optical Service Gateway (OSG) Platform offering. This platform supports feature sets for a wide variety of business and home gateways delivering quadruple play services – video, data, voice and wireless.

Close coupling between these product families through harmonized software offers customers the security of interfacing with a single product vendor, and streamlines the development process. This total approach relieves a systems vendor from a sizeable software development, saving development costs and shortening time to market.

Minimizing the BOM cost is a major focus for any CPE design. Centillium's goal is to make this possible by careful integration of product features across product families. And this goal is achieved in the OSG by minimizing on-board RAM requirements and other peripheral devices.

Hardware

Incorporated in the OSG are Systems-on-Chip (SoC) selected from Centillium's Mustang™ and Atlanta™ product families.

[Atlanta 100](#) is a highly integrated SoC combining a management processor, a voice engine, and a data engine. It is specifically designed for residential gateways, media terminal adapter (MTA), and integrated access devices (IAD). Its design integrates a high-performance network processor, two RMII interfaces, a voice DSP (digital signal processor), a USB interface, and dual PCM/IOM2 interfaces.

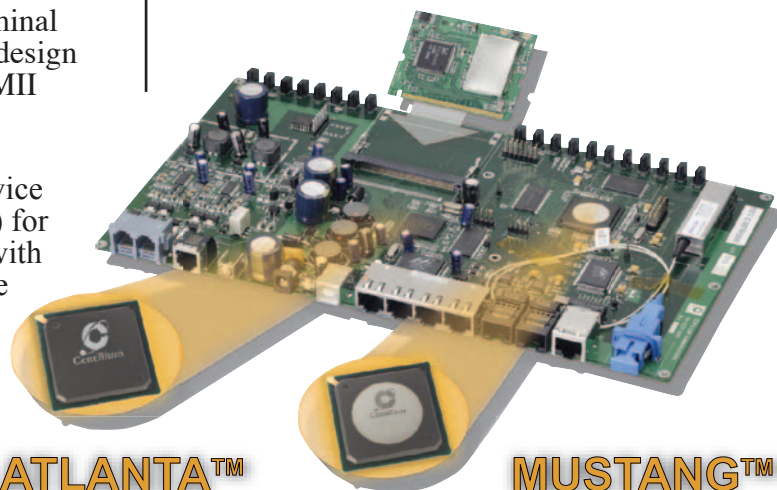
The [Mustang 200](#) SoC addresses the requirements of service providers deploying customer premises equipment (CPE) for Ethernet Passive Optical Networks (EPON). Combined with either Centillium's OLT chip, COLT 100, or interoperable solutions from other vendors, Mustang supports all the protocol requirements and relevant standards to ensure error free, bandwidth efficient delivery of voice, data and video services over EPON networks.

Software

The OSG is sustained by a full featured software package supporting a standards compliant EPON ONU feature set plus support of bridging, routing, security, NAT, WiFi and voice functionality with PSTN back-up. Additionally this package also incorporates a broad set of APIs, enabling the systems vendor to develop a customized feature set.

Customer Development and Evaluation Kit

To shorten systems vendors' time to market Centillium offers a Development and Evaluation kit, (CT-TPGEN210) based on [Mustang](#) and [Atlanta](#). This product provides EPON ONU, gateway router, and Media Terminal Adaptor (MTA) functionality.



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Optical Services Gateway (OSG) Platform

Features

Mustang Series EPON ONU Protocol SoC

- Single-chip, mixed-signal solution for ONU offering full compliance with the IEEE 802.3ah specification

On Board CPU support

- 320 Kbytes packet buffer plus 192 Kbytes program memory
- 125 MHz MIPS4Kc CPU core with 16 Kbytes D-cache and 8 Kbytes I-cache

Interfaces and UNI ports

- Two 10/100/1000 Base-T GMII/MII/RMII UNI ports
- Integrated SerDes and CDR for PON interface
- Interface to multi-vendor burst mode transceivers

Bridge

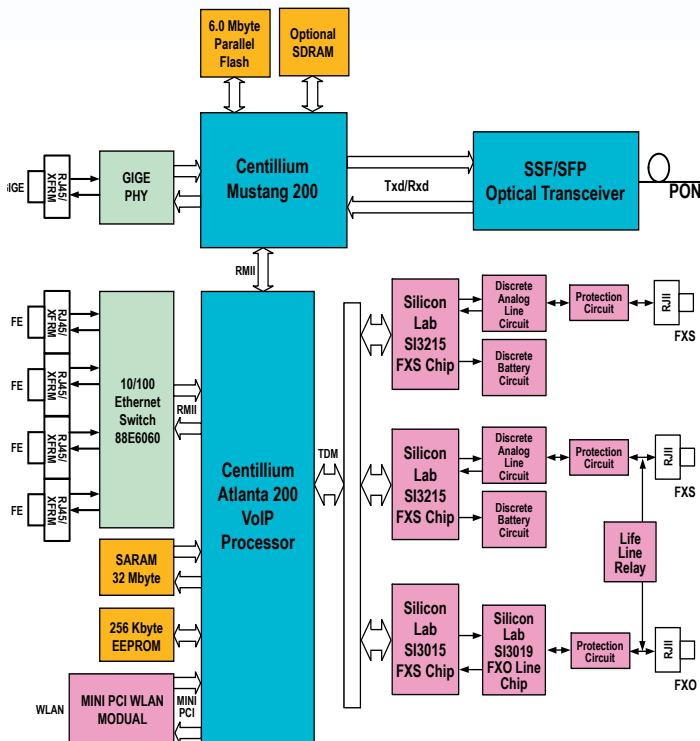
- IEEE 802.1d compliant bridge connecting the PON Interface to the UNI ports
- Fully configurable IEEE 802.1q VLAN and VMAN support including tag addition, removal, forwarding, overwriting, and stacking
- Support for 64 MAC addresses (static and dynamic) at the UNI with learning and filtering
- IPv4 and IPv6 support
- PPPoE (point-to-point protocol over Ethernet) support

Encryption and Authentication

- Wire-speed (1.25 Gbps) upstream and downstream encryption and decryption based on AES-128 FIPS PUB197
- Separate encryption key per logical link
- Encryption key handshake and on the fly key change with no loss of frame
- Supports multiple authentication schemes including IEEE 802.1X with remote input, MAC address and password based authentication

Functional Block Diagram

System shown in Data Plus Voice configuration supporting four Ethernet interfaces with total available bandwidth up to 1 Gbps, plus four FXS ports



For further information on Atlanta, Mustang and Centillum's complementary products, including the COLT Series EPON OLT Protocol SoCs and ZEUS multirate transceiver chip family, please go to: www.centillum.com/html/optical.htm

EPON Protocol and Management

- Full compliance to IEEE 802.3ah, including Protocol clauses #64 and #65
- Full compliance to the IEEE 802.3ah Management clause #57
- 256 IPTV/broadcast channels with SCB (single-copy broadcast)
- Comprehensive processing and generation of the EFM (Ethernet in the first mile) MPCP messages
- Standard plus enhanced proprietary registration and de-registration

Atlanta Broadband Services Gateway

Hardware Engines

- High performance hardware routing engine
- Hardware AES, DES, and 3DES encryption engine
- 200 MHz MIPS Network processor with 16KB I-Cache, 8KB D-cache, and MMU
- Integrated 200 MHz Voice DSP processor
- Packet acceleration engine

Voice features

- Supports up to four channels of deep compression codecs
- Supports one FXO and four FXS channels
- G.711 (PCM), G.729a/b, G.726-32, and G.723.1 AMR narrowband codecs
- Supports generic VAD (voice activity detection) and CNG (comfort noise generation)
- G.711 fax/modem pass-through (fax/modem detection, and reversion to PCM 64 Kbps)
- Supports caller ID, including JCLIP

Data Support:

- Packet-level traffic shaping as well as classification and marking for IPQoS support
- Packet header co-processor with ingress queuing for fast incoming traffic pre-processing
- Integrated VPN and firewall for highest performance and security
- Data networking and management
- SNMP V1/V2
- NATP with over 50 ALGs
- TCP/IP with RIP1 and RIP2
- 802.1d transparent bridging protocol
- Embedded http server

Interfaces and Memory Support:

- 16-bit PC Card and 32-bit PCI
- SPI interface with four chip selects for serial, flash, Ethernet switches, and SLIC/SLACs
- PCM/IOM2 interface with programmable time slots
- Boot loading and configuration using either parallel flash on PC Card bus, serial flash on SPI bus, or external host on PCI bus
- Supports 8-, 16-, or 32-M bytes of SDRAM
- Support for 32-bit wide SDRAM memory
- USB 1.1 slave interface
- One standard UART interface

Development and Evaluation Kit

- The CT-TPGEN210 provides developers with the basis for a fast, efficient EPON service gateway development effort.

Included in the kit

- Fully populated evaluation board
- Reference designs
- Full featured software package
- Set of cables power supply and full documentation

Part Ordering Information

Product	Function	Part Number	Package
Mustang	EPON ONU	CT-TPSMN12	456-BGA
Atlanta	Broadband Gateway	CT-A10RN14	256-LBGA



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